

IAFF6501-11: Quantitative Techniques

Assignment 3

32 points total

Part A.

Sixty randomly selected television viewers were asked to rate an idea for a television series as boring, exciting, or no opinion. The frequencies results are shown in the table below:

Boring	Exciting	No Opinion
28	15	17

1. Formulate the null and the research/alternative hypothesis. (2pts)
2. a. Compute the expected frequencies. Show your calculations. (1pt)
b. Compute the chi-square statistic. Show all calculations. (5pts)
3. Compute degrees of freedom. Show your calculation. (1pt)
4. What is the chi-square critical value at .05 alpha level? (1pt)
5. a. Do you reject or fail to reject the null hypothesis? (1pt)
b. How did you determine your response to 5a? (1pt)
6. Based on your responses to question 5, state your conclusion. (2pt)

Part B.

A random sample of 40 patients from a metropolitan medical center was asked whether they were satisfied or dissatisfied with their doctors. A panel studying the quality of health care was interested in whether patients' opinion of their doctors was related to the severity of their illness. The frequency results are shown in the table below:

	Satisfied	Dissatisfied	Total
Severely Ill	10	20	30
Not Severely Ill	40	10	50
Total	50	30	80

1. Formulate the null and research/alternative hypothesis. (2pts)
2. a. Compute the expected frequencies. Show all calculations. (5pts)
b. Compute the chi-square statistic. Show your calculation. (5pts)
3. Compute degrees of freedom. Show your calculation. (1pt)
4. What is the chi-square critical value at .05 alpha level? (1pt)
5. a. Do you reject or fail to reject the null hypothesis? (1pt)
b. How did you determine your response to 5a? (1pt)
6. Based on your responses to question 5, state your conclusion. (2pt)